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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/737,336	12/16/2003	Kenichiro Kobayashi	KIK01 P-322A	6152
277	7590	06/14/2006	EXAMINER	
PRICE HENEVELD COOPER DEWITT & LITTON, LLP 695 KENMOOR, S.E. P O BOX 2567 GRAND RAPIDS, MI 49501			SUN, XIUQIN	
			ART UNIT	PAPER NUMBER
			2863	

DATE MAILED: 06/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/737,336

Applicant(s)

KOBAYASHI ET AL.

Examiner

Xiuqin Sun

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,3,6,8,11,14,16 and 17 is/are allowed.
- 6) ☒ Claim(s) 2, 4,5,7,9,10,12,13 and 15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>12/16/2003</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following informalities:

Please Fill in the missing U.S. Patent Number that is underlined in the "CROSS-REFERENCE TO REGTED APPLICATION" section.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 2, 4, 5, 7, 9, 10, 12, 13, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiyoshi (JP07110216, English translation) in view of Cuche et al. (U.S. Pat. No. 6262818) and Miyagawa (U.S. Pat. No. 3739697).

Regarding claim 2, Hiyoshi teaches an apparatus for direct image pick-up of a particular granular speck pattern generated by reflecting light of a laser beam depending on a degree of roughness of the surface of an object to be inspected (see Abstract, Fig. 1; sections 0002, 0006 and 0007), comprising: a video camera having a

CCD (Charge Coupled Device) element incorporated in said camera (Fig. 1; sections 0006, 0007, 0011, 0012, 0015, 0016 and 0018).

Hiyoshi does not mention that: said camera is a lensless CCD camera; and providing a shielding tube coupled to said camera to shield extraneous light rays.

Cuche et al. teach an apparatus of picking up image pattern in a relatively well lighted environment using a lensless video camera having a CCD (Charge Coupled Device) (col. 2, lines 15-25; col. 10, lines 63-67; col. 11, lines 40-57; col. 24, lines 58-67 and col. 25, lines 25).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teaching of Cuche et al. in the Hiyoshi system in order to provide a mechanism for direct image picking up (Cuche et al., col. 10, lines 63-67).

Miyagawa discloses a data recording device for use with cameras, comprising a shielding tube coupled to said camera to shield extraneous light rays (col. 3, lines 14-37 and col. 4, lines 4-14).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teaching of Miyagawa in the Hiyoshi system in order to prevent extraneous light from entering into the light shielding tube so that no noise light would interfere the signal light in detecting the target (Miyagawa, col. 3, lines 14-37 and col. 4, lines 4-14).

Regarding claims 4 and 7, Hiyoshi further teaches an apparatus for direct image pick-up of a particular granular speck pattern generated by the transmitted light of a

laser beam diffusively reflecting depending on a degree of roughness of the laser beam irradiated onto the surface of an object to be inspected or shapes of fine ingredients constituting said object to be inspected (see Abstract, Fig. 1; sections 0002, 0006 and 0007), comprising: a video camera having a CCD element incorporated in said camera (Fig. 1; sections 0006, 0007, 0012, 0015, 0016 and 0018).

Hiyoshi does not mention that: said camera is a lensless CCD camera; and providing a shielding tube coupled to said camera to shield extraneous light rays.

Cuche et al. teach an apparatus of picking up image pattern in a relatively well lighted environment using a lensless video camera having a CCD (Charge Coupled Device) (col. 2, lines 15-25; col. 10, lines 63-67; col. 11, lines 40-57; col. 24, lines 58-67 and col. 25, lines 25).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teaching of Cuche et al. in the Hiyoshi system in order to provide a mechanism for direct image picking up (Cuche et al., col. 10, lines 63-67).

Miyagawa discloses a data recording device for use with cameras, comprising a shielding tube coupled to said camera to shield extraneous light rays (col. 3, lines 14-37 and col. 4, lines 4-14).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teaching of Miyagawa in the Hiyoshi system in order to prevent extraneous light from entering into the light shielding tube so that no noise

light would interfere the signal light in detecting the target (Miyagawa, col. 3, lines 14-37 and col. 4, lines 4-14).

Regarding claims 9, 10 and 13, the teaching of Hiyoshi further includes: an A/D converter coupled to said camera to convert an analog signal supplied from said camera to a digital signal (sections 0013, 0016 and 0018); a processing unit coupled to the A/D converter to calculate the amount of movement of said object on the basis of movement of the granular speck in said pattern with respect to a pixel interval of said granular speck pattern picked up by said camera and represented by said A/D converted signal (sections 0007, 0016, 0018 and 0022); and a display coupled to said processing unit to display the amount of movement calculated by said processing unit (Fig. 1; sections 0018 and 0023); and an electrical circuit coupled to said camera for calculating the amount of movement of said object on the basis of movement of the granular speck in said pattern with respect to a pixel interval of said granular speck pattern picked up by said camera and displaying the amount of movement calculated by said electrical circuit (Fig. 1; sections 0007, 0016, 0018 and 0022 and 0023).

Regarding claim 5, Hiyoshi further teaches an apparatus for direct image pick-up of a particular granular speck pattern (see Abstract, Fig. 1; sections 0002, 0006 and 0007), comprising the steps of: a laser for directing a laser beam onto the surface of an object to be inspected (sections 0009 and 0012); a video camera having a CCD element incorporated in said camera (Fig. 1; sections 0006, 0007, 0012, 0015, 0016 and 0018).

Hiyoshi does not mention that: said camera is a digital camera; providing a shielding tube coupled to said camera to shield extraneous light rays.

Cuche et al. teach an apparatus of directly picking up image pattern in a relatively well lighted environment using a lensless digital camera (col. 2, lines 15-25; col. 10, lines 63-67; col. 11, lines 40-57; col. 24, lines 58-67 and col. 25, lines 25).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teaching of Cuche et al. in the Hiyoshi system in order to provide a mechanism for direct image picking up (Cuche et al., col. 10, lines 63-67).

Miyagawa discloses a data recording device for use with cameras, comprising a shielding tube coupled to said camera to shield extraneous light rays (col. 3, lines 14-37 and col. 4, lines 4-14).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teaching of Miyagawa in the Hiyoshi system in order to prevent extraneous light from entering into the light shielding tube so that no noise light would interfere the signal light in detecting the target (Miyagawa, col. 3, lines 14-37 and col. 4, lines 4-14).

Regarding claim 12, Hiyoshi further teaches: a processing unit coupled to said camera to calculate the amount of movement of said object on the basis of movement of the granular speck in said pattern with respect to a pixel interval of said granular speck pattern picked up by said camera (sections 0007, 0016, 0018 and 0022); and a

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display coupled to said processing unit to display the amount of movement calculated by said processing unit (Fig. 1; sections 0018 and 0023).

Regarding claim 15, Hiyoshi further teaches an apparatus for direct image pick-up of a particular granular speck pattern generated by reflecting light of a laser beam depending on a degree of roughness of the laser beam irradiated surface of an object to be inspected (see Abstract, Fig. 1; sections 0002, 0006 and 0007), comprising: a CCD camera (Fig. 1; sections 0006, 0007, 0012, 0015, 0016 and 0018).

Hiyoshi does not mention that: said camera is a lensless camera; providing a shielding tube coupled to said camera to shield extraneous light rays.

Cuche et al. teach an apparatus of picking up image pattern using a lensless digital camera (col. 2, lines 15-25; col. 10, lines 63-67; col. 11, lines 40-57; col. 24, lines 58-67 and col. 25, lines 25).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teaching of Cuche et al. in the Hiyoshi system in order to provide a mechanism for direct image picking up (Cuche et al., col. 10, lines 63-67).

Miyagawa discloses a data recording device for use with cameras, comprising a shielding tube coupled to said camera to shield extraneous light rays (col. 3, lines 14-37 and col. 4, lines 4-14).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teaching of Miyagawa in the Hiyoshi system in order to prevent extraneous light from entering into the light shielding tube so that no noise



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light would interfere the signal light in detecting the target (Miyagawa, col. 3, lines 14-37 and col. 4, lines 4-14).

***Allowable Subject Matter***

4. Claims 1, 3, 6, 8, 11, 14, 16 and 17 are allowed.

***Reasons for Allowance***

5. The following is an examiner's statement of reasons for allowance:

The primary reason for the allowance of claims 1, 3, 6, 8 and 11 is the inclusion of the claimed method step of: directly picking up said granular speck pattern in a relatively well lighted environment using a lensless video camera having a CCD (Charge Coupled Device) element incorporated in said camera. It is this limitation found in each of the claims, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes these claims allowable over the prior art.

The primary reason for the allowance of claims 14, 16 and 17 is the inclusion of the claimed method step of: directly picking up said granular speck pattern in a relatively well lighted environment using a lensless camera. It is this limitation found in each of the claims, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes these claims allowable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

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accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

### ***Response to Arguments***

7. Applicant's arguments filed 03/13/2006 with respect to claims 1, 3, 6, 8, 11, 14, 16 and 17 are persuasive. Allowable subject matters recited in these claims are identified as set forth above in section 5 of this Office Action.

Applicants' arguments regarding claims 2, 4, 5, 7, 9, 10, 12, 13, 15 have been considered but are not persuasive.

Applicants argued that "there is no suggestion or motivation either in the

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references themselves or to the knowledge generally available to one of ordinary skill in the art, to combine the reference teachings". This argument is not persuasive. The Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). The Examiner further recognizes that the test for obviousness is not whether the features of a second reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this case, it is deemed that all the cited prior art references are in the same area of image pickup. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine or modify the teachings of those reference in order to make an improvement or a mere application of the known inventions. Moreover, the Cucho patent does suggest a lensless camera for direct pickup of images (col. 2, lines 15-25; col. 10, lines 63-67); the Miyagawa patent does suggest that a shielding tube coupled to a camera is to be used to shield extraneous light rays (col. 3, lines 14-37 and col. 4, lines 4-14). The mere application of a known techniques to a specific instance by those skilled in the art would have been obvious.


**Contact Information**

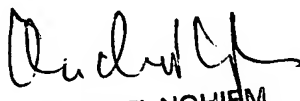
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xiuqin Sun whose telephone number is (571)272-2280. The examiner can normally be reached on 6:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571)272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Xiuqin Sun  
Examiner  
Art Unit 2863

XS   
June 6, 2006

  
MICHAEL NGHIE  
PRIMARY EXAMINER